Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
Petition For Declaratory Ruling	)	WT Docket No. _____
Regarding The Use of Class B Signal	)	
Boosters By Public Safety Entities	)	

PETITION FOR DECLARATORY RULING
JACK DANIEL DBA JACK DANIEL COMPANY

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I. Introduction and Summary

Petitioner, Jack Daniel dba Jack Daniel Company, ("Daniel")[1], pursuant to Section 1.401 of the Commission's Rules, 47 C.F.R. §1.401, hereby respectfully requests that the Commission issue a Declaratory Ruling regarding public safety licensees' use of Class B signal boosters.

The issues to be resolved pursuant to this request involve the installation and use of Class B signal boosters by public safety entities seeking to create a more robust signal to assure reliable communications for first responders, to promote the safety of life and property for citizens relying on public safety communications systems.

Due to some published reports by manufacturers of signal boosters that purport to clarify the Commission's opinion regarding compliant operations, which reports appear to be at odds with the Commission's previous determinations and rule making, public safety entities have become confused regarding the use and deployment of Class B signal boosters. This confusion is causing havoc with local governments' proposed uses, purchase decisions, and the manner by which existing

[1] Information regarding Petitioner is attached hereto at Exhibit 1.

systems are deployed. Therefore, Daniel seeks the Commission's assistance in ending this confusion by clarifying the rights and responsibilities of affected licensees.

II. Use Of Class B Signal Boosters

Following a comprehensive review of the Commission's relevant, published decisions[2] the issue of Class B signal boosters and their use appears to be settled. Pursuant to those decisions, the Commission stated, "we are adopting rules allowing the use of signal boosters . . . on Part 90 land mobile and paging frequencies above 150 MHz . . ." *Report and Order* at ¶ 10. Therefore, the general use of signal boosters was approved for use by Part 90 licensees, including public safety entities, for extension of signals above 150 MHz. The Commission further decided that "we will restrict use of Class B broadband boosters under Parts 22, 90 and 94 to areas that are confined or enclosed such as tunnels, underground parking garages, and within buildings (i.e. areas where there is little or no risk of interference to others)." *Id* at ¶ 17.[3] The Commission further determined that a limitation on effective radiated power for operation of signal boosters was appropriate and stated, "We are adopting a maximum signal booster output power level of 5 watts ERP per channel as

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[2] In the Matter of Amendment of Parts 22, 90, and 94 of the Commission's Rules to Permit Routine Use of Signal Boosters, *Report and Order*, WT Docket No. 95-70, RM-8200 (released June 5, 1996) (*Report and Order*) and In the Matter of Amendment of Parts 22, 90, and 94 of the Commission's Rules to Permit Routine Use of Signal Boosters, *Memorandum Opinion and Order*, WT Docket No. 95-70, RM-8200 (released May 21, 1997) (*Memorandum Opinion and Order*). *Also*, letter dated June 6, 2005 from Michael J. Wilhelm, Chief Public Safety and Critical Infrastructure Division, Wireless Telecommunications Bureau, to Canam Technologies.

[3] The Commission did, of course, place the burden for interference-free operations on the operator of the signal booster, similar to the requirements the Commission enforces for operation of other non-licensed radio equipment. Additionally, the Commission's published rules did not permit operation of Class B signal boosters under Parts 22 and 24, restricting that use to Part 90, while adding language regarding remote operations under Section 90.219(d).

recommended by a majority of the commenters." *Id* at ¶ 20. Regarding licensing, the Commission stated, "we see no basis to impose a notification requirement or require licensees to provide us with information on the location and use of signal boosters." *Id* at ¶ 23.

It, therefore, appears quite clear that a summary of the Commission's decisions result in the following criteria for operation of Class B signal boosters: (1) that Class B boosters may be operated by licensees seeking to extend or improve reliable communications; (2) that Class B boosters may only be deployed in confined locations or from remote locations; (3) that power is limited to 5 watts ERP per channel; (4) that operators of Class B boosters are responsible for eliminating all interference caused by operation; and (5) that no license is required for the operation of these devices. Daniel asserts and requests a Declaratory Ruling that these five elements articulate the totality of the Commission's decisions regarding the deployment and use of Class B signal boosters.

The purpose of requesting this Declaratory Ruling is to eliminate some misconceptions that exist in the marketplace. First, that the Commission has made some distinction in the operation of Class B signal boosters in rural versus urban environments, allowing the former and restricting the latter. Daniel believes that no such distinction exists under the Commission's Rules and policies and that licensees in either environment may deploy Class B signal boosters to improve system operations, regardless of whether the confined space to be served is located in an urban or rural environment. Daniel asserts that the confusion that has arisen is due to limitation (2) above that is being misconstrued as though remote operation is a second requirement, or that the word "remote" means a rural location. There is no basis for such interpretation of the Commission's Rules.

Daniel does opine that the language of Section 90.219(d) allows for operations, not in a confined space, if a Class B signal booster is intended for rural operation "in remote areas, i.e., areas where there is little or no risk of interference to other users." But this reduction in operational limitation does not reduce the potential deployment of Class B signal boosters in an urban environment, as well, either within a confined space or a remote location, with remote referring to the threat of interference without regard to population density. The issue is interference alone and the rf environment, not urban versus rural. Daniel respectfully requests confirmation of this interpretation in the Declaratory Ruling.

The second (and related) misconception involves whether a Class B signal booster can operate as an rf link back to the repeater location. The Commission's Rules and decisions contain no limitation on the effect of operating a Class B signal booster as long as the booster is operated in a confined area, *i.e.* within a building. It is not unusual that such operation, particularly in upper portions of a building, might result in sufficient signal strength from the signal booster to provide this final link to the repeater, without violation of either the deployment criterion (installed within a building) and the power limitation (5 watts ERP).[4] In fact, this situation is becoming increasingly

[4] This use often includes the use of an exterior antenna to improve the reliability of the link to the repeater site. Since the signal is line-of-sight to the repeater, the rf link does not result in a threat of harmful interference, since the signal is operated from a "remote" location from end user operation. Experience has shown that this use of Class B signal boosters is not a cause of any interference and greatly enhances the reliability of public safety networks. Since the Commission's Rules make permissible remote operations that are deployed in a manner to avoid harmful interference and those rules do not state that the use of the word "remote" is equivalent to rural operations, then the use of exterior, directionalized antennas to create the final rf link would appear to be operation in compliance with Section 90.219(d). Indeed, any other interpretation would be inconsistent with the Commission's allowance of two-way operations employing Class B signal boosters.

common in public safety's use of Class B signal boosters and it is paving the way for many jurisdictions to create a highly cost effective solution to building penetration throughout various jurisdictions. The alternative to this design is to cause licensees to have to install much more expensive Class A signal boosters or some combination of Class A and Class B signal boosters to meet the needs of licensees.

Daniel notes that the operation of Class B signal boosters that include a communications link back to the repeater is fully consistent with the basic use of such devices. Just as the intent of the signal booster is provide greater received signal strength to end users, it must also provide a return path to the repeater to be effective for benefitting first responders operating within a building. Fire fighters should not be rendered mute to the repeater when relying on signal boosters, and the less rf equipment upon which they might rely (vice a series of bi-directional amplifiers) will increase the reliability of the links to eommunicate with dispatchers and other public safety personnel[5]. This is not to suggest that the Commission's admonition regarding "confined spaces" be ignored, however, it is also important that public safety entities recognize that in the event that a Class B signal booster, installed within the building in accord with rule and law, produces an intended signal that will allow personnel to communicate with a repeater location, that this intended occurrence does not render such operation a violation of the Commission's Rules. To the contrary, the Commission's decisions

[5] Indeed, the Commission's definition of "signal booster" at Section 90.17 clearly allows for two-way operation, without regard to whether the device is identified at Class A or B. Thus, the Commission's Rules demonstrate an intention that these devices are suitable, when properly operated in accord with other limitations, for communications to a fixed repeater site.

on the subject outlined above, and Section 90.219(d) of the Commission's Rules, 47 C.F.R. §90.219(d), do not contain any such prohibition on that functionality.

Daniel seeks a Declaratory Ruling from the Commission confirming Daniels' above articulated interpretation of the Commission's Rules and policies. Recent events and misinformation within the marketplace are having a chilling effect on the integration of Class B signal boosters when the introduction of these devices would be highly beneficial to public safety entities. Some local governments that have integrated the use of Class B signal boosters into network designs that will be funded with Department of Homeland Security grants are particularly concerned as to whether any limitation on the deployment of Class B signal boosters may have an adverse effect on that funding. It is important, therefore, for the Commission to assist public safety entities and Part 90 licensees in their appreciation of their opportunities and duties related to the deployment of Class B signal boosters.

III. Benefits of Class B Signal Boosters

The primary motivation underlying this Petition is Daniel's knowledge of the benefits inherent in the operation of Class B signal boosters by public safety entities. Although the Commission encourages, where appropriate, the use of Class A signal boosters due to the belief that these devices have less potential for the creation of harmful interference, this singular, alleged benefit must be weighed against other difficulties in public safety's use of Class A signal boosters.

Class A signal boosters are more expensive, require comparatively more power to operate, and are larger in size. It is, therefore, no wonder that both public safety entities and Sprint Nextel Corporation have looked for ways to deploy Class B signal boosters in numerous buildings. In fact, Sprint Nextel is the single largest licensee that relies on Class B signal boosters to communicate with repeater locations.

Although the Commission's earlier decisions did not clearly address it, Class A signal boosters inherently alter the propagation characteristics of the licensee's channels in an undesirable manner. When a signal booster is restricted to frequency amplification of one assigned channel's bandwidth, this causes delay in the transmission of the amplified signal. When this delayed signal overlaps the direct signal from the remote base station, the resulting effect can be "multipath" and the operations become unpredictable and unreliable.[6] However, as the amplified bandwidth is increased, the amount of delay is reduced and, thus, multipath. Seeking to avoid multipath and to achieve reliable operations, public safety entities are naturally gravitating toward the increased use of Class B signal boosters to provide reliable, efficient operations.

Daniel has also sought to determine what the actual risk of interference from Class B signal boosters might be, since this was an articulated concern of the Commission's in its earlier decisions. Daniel surveyed numerous public safety and private radio users, inquiring as to each's experience with Class B signal boosters. What Daniels discovered was that in the vast majority of reported

[6] It is common practice for Class A signal booster operators to increase the bandwidth to reduce this delay, despite the fact that the altered Class A device is, in effect, turned into a Class B device.

cases of interference, the problem did not arise from operation of the Class B signal booster, per se, but rather the cause was traced to improper installation of the device.

Specifically, oscillation can occur when there is insufficient isolation (radio frequency path loss) between the outside antenna and the inside antenna. This circumstance is not addressed within the equipment authorization rules and, thus, such failed installations are not in themselves violations of the Commission's Rules. However, it is important to note that this problem can arise with both Class A and B signal boosters. What is significant is that these occurrences are less likely when the installer of the signal booster is a public safety entity. Public safety technicians are, on average, better trained, more experienced, and demonstrate a deeper commitment to the proper operational characteristics of their system due to the public safety importance of assuring reliable communications.

The truth is that all FCC authorized Class A and B signal boosters are subject to the same standards that might apply to the potential generation of harmful interference. The risk of interference is reduced for either Class of device by application of best practices, including use of minimum reliable power levels, level settings, and antenna placement. The further truth is that the fears of interference from Class B signal boosters has simply not been realized in real environments. Although commercial broadband licensees still suggest that Class B signal boosters present a high risk of interference, the reality is that Class B signal boosters operated by Part 90 licensees present an extremely low risk of problems for commercial broadband licensees. In fact, with the rebanding of 800 MHz and the removal of interleaved operations by Sprint Nextel, the opportunity for

interference is even more reduced, to the extent that whatever risk continues to exist should be deemed entirely acceptable in view of the numerous benefits garnered by public safety in the continued, expanded use of Class B signal boosters.

IV. Forbearance From Regulation

Daniel notes that many public organizations and jurisdictions are building into local zoning and permitting regulations a requirement that Class B signal boosters be installed within various structures, such as buildings and parking garages. The local zoning decisions are intended to protect citizens that rely on first responders ability to communicate within structures where dead zones might otherwise be present. For some jurisdictions, the permitting may require a building owner to install a Class B signal booster. With other jurisdictions, the local government may install the Class B signal booster and maintain it with the building owner's cooperation. These fire code changes to incorporate Class B signal boosters are supported by the National Fire Protection Association (NFPA) and the International Code Council (ICC). The necessity of installing the robust signal capacity provided by Class B signal boosters was noted by the National Institute of Science and Technology (NIST) Post WTG Recommendations to Congress.[7]

It is expected that there will be a nationwide acceptance of the need for Class B signal boosters to become a portion of local fire codes. The issue then becomes whether the Commission deems this activity to be outside of its jurisdiction or whether the Commission will deem it necessary to intrude into this area of local regulation. This issue is significant since the Commission may be

[7] *See*, wtc.nist.gov at Recommendation 22.

asked to balance the interest of radio licensees and public safety entities. It is not difficult to envision local governments' efforts to improve in building coverage of both public safety channels and commercial wireless channels, to provide additional support for E911 operations.

Daniel seeks a Declaratory Ruling that states that at this time the Commission is not considering limiting local jurisdictions' abilities or authority to enact zoning and code provisions that will promote the reliability of public safety communications by mandating the installation of Class B signal boosters. Many jurisdictions have passed or are poised to pass legislation that will encourage the use of Class B signal boosters for safety purposes in response to the numerous opinions of various safety groups that such use is necessary to assure communication to first responders within structures. Since this issue is before so many cities and counties, it is incumbent on the Commission to provide some indication that those efforts or code provisions will not be usurped via an assertion of exclusive jurisdiction by the Commission resulting in conflicting regulation.

It is Daniel's opinion that the Commission should not involve itself in local zoning decisions regarding Class B signal boosters operated in accord with present Commission Rules. There can be no doubt that local governments are better situated to encourage this enhancement in public safety, while assuring compliant and proper installation and operation of Class B signal boosters.[8] Fire marshals and similar personnel are on site and are important stakeholders in assuring compliance

[8] Since Class B signal boosters are unlicensed operation, such local code provisions do not intrude on the Commission's exclusive licensing authority.

with local zoning that reflects the Commission's operational limitations, while promoting more reliable public safety communications. Therefore, it is both practical and appropriate that these government officials be allowed to provide necessary protections to citizens and first responders through the ability to enact and enforce such fire code language.

The above considered, Daniel hereby requests a Declaratory Opinion from the Commission that states that at this time the Commission does not intend to regulate the use of Class B signal boosters in such a manner that it will negate the efforts of local governments and public safety entities to protect their citizens via the mandating of better wireless services within buildings and other vulnerable structures.

EXHIBIT 1

Petitioner Information
Jack Daniel

Jack Daniel is the sole proprietor of The Jack Daniel Company, a turn-key provider of consultation services , training programs, system design and material supplier specializing in in-building communications enhancement nationwide. Jack Daniel is a nationally recognized authority on public safety use of signal boosters with over 15 years experience in that field.

Jack Daniel has spoken on the subject of signal boosters and in-building communications and signal boosters before such organizations such as the Association of Public-safety Officials, International (APCO), National Public Safety Telecommunications Council (NPSTC), National Fire Protection Association, International Wireless Communications Expo (IWCE)Institute for International Research (IIR), American Conference Institute (ACI), Enterprise Wireless Alliance (EWA)Institute as well as before many public safety agencies and their associations.

Jack Daniel is a Life member of Association of Public-safety Officials, International (APCO), fellow in the Radio Club of America (RCA) and member of;, National Fire Protection Association, International Code Council (ICC), Association of Police Chiefs International (IACP), Association of Fire Chiefs (IAFC), California Wireless Association (CalWA).

Jack Daniel is an advisor to the Association of Public-safety Communications Officials (APCO), vice chair of the National Public Safety Telecommunications Council (NPSTC) In-Building communications committee, a contributor to the in-building tasks forces of National Fire Protection Association (NFPA) and International Code Council (ICC) International Fire Code (IFC) section.

Signal booster applications that Jack Daniel has contributed to include communication systems used in major international airports, high-rise buildings, subway systems, nuclear power plants and U.S. military applications.

Jack Daniel focuses on implementing highly reliable and survivable, life saving wireless communications capability to Fire, Law Enforcement and Emergency Medical Services within structures and confined areas used by the public.